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THE ELM LEAF BEETLE

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U. S. DEPARTMENT OF AGRICULTURE

THE ELM LEAF BEETLE

Prepared in the Division of Forest Insect Research, Forest Service

THE ELM LEAF BEETLE may be found on elm trees wherever they grow in the United States. It feeds on the leaves and skeletonizes them so that they dry up and drop prematurely. Heavy defoliation weakens the trees and makes them subject to attack by other bark beetles and borers as well as by diseases. Elms growing in urban locations, especially those near buildings, are most heavily infested. This beetle causes the most widespread damage in the Eastern States and California.

How To Recognize It

The adult elm leaf beetle is about 1/4 inch long, yellowish to olive-green, with a black stripe, sometimes indistinct, along the margin of each wing cover. The eyes are black and the antennae and legs yellowish.

The eggs are orange yellow and shaped like a spindle, and are attached in groups of 5 to 25 endwise to the undersides of the leaves.

The newly hatched larva, or grub, appears nearly black, because the yellow color of the skin is obscured by dark tubercles and hairs. The full-grown larva is about 1/2 inch long and dull yellow with two black stripes down the back. The head, legs, and tubercles are black.

The pupa is about 1/4 inch long, bright orange yellow, with a few black bristles.

Life History and Habits

These beetles pass the winter in the adult stage, on or near the tree on which they fed. In the Northeastern States most of them hibernate in buildings, especially in house attics, barns, and sheds. During periods of warm weather in the winter many of them become active and cause considerable annoyance by crawling into living quarters and onto the windows.

In the spring they come out of hibernation, fly to elms nearby, and begin to chew holes in the unfolding leaves. Egg laying begins late in May or early in June and continues for several weeks, each female laying from 400 to 800 eggs. The eggs hatch in about a week, and the larvae feed for 2 to 3 weeks on the under surface of the leaves. Only the veins and upper surfaces are left, and the leaves soon dry up and turn brown. When full-grown the larvae seek crevices in the bark or at the base of the tree in which to pupate. After about 10 days the pupae have transformed to adults.

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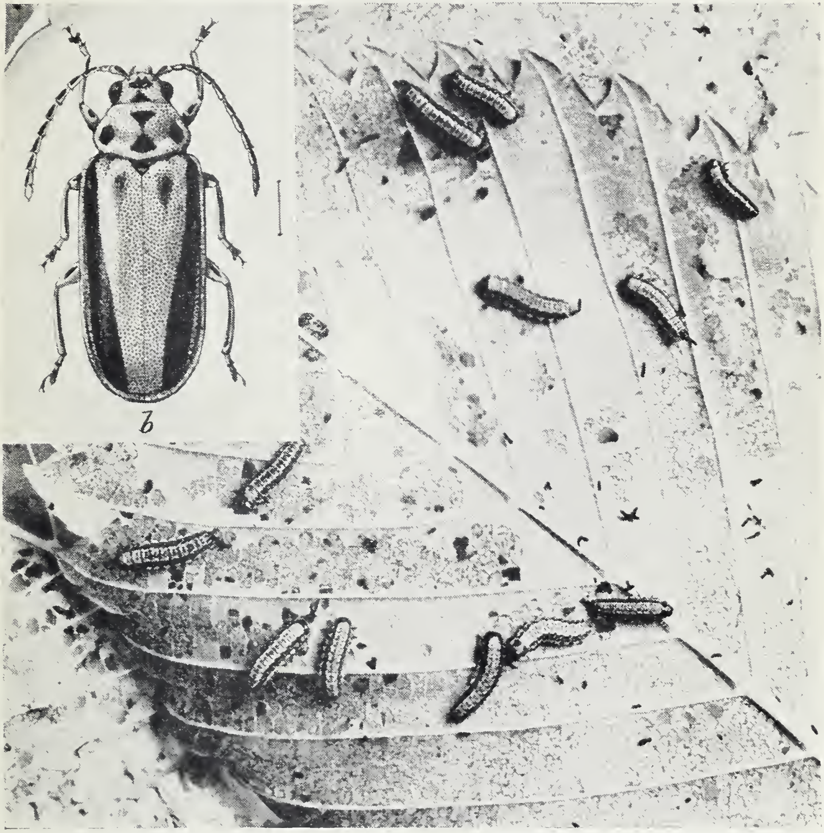
In the eastern part of the United States there may be one or two complete generations and sometimes a partial third generation, depending on the climate. Usually the first generation causes the most damage. The beetles that mature in the summer seek hibernation quarters as early as August, but the movement continues until cool weather.



Larvae of the elm leaf beetle feeding on an elm leaf; (insert) adult beetle. Enlarged.

Natural Control

Toads, birds, and several kinds of insects feed on elm leaf beetles. A native parasite known as *Tetrastichus brevistigma* frequently kills a large proportion of the beetle pupae in the Northeastern States. This parasite is now established in California. Attempts to establish several European parasites in the United States have not been successful. A white mold, or fungus, called *Sporotrichum globuliferum* kills pupae and adults late in the summer, especially in moist seasons, and at times is an important enemy of the pest.

Control With Insecticides

The elm leaf beetle is seldom a pest of importance in the forest, but frequently control measures are necessary to protect the foliage of elm shade trees. One thorough and properly timed application of a suitable insecticide will give protection throughout the season. (Where elms have been properly sprayed in late dormancy with DDT for control of elm *bark* beetle feeding, no additional treatments are necessary for control of the elm leaf beetle.) Sprays for the elm leaf beetle should be applied to the undersides of the leaves, preferably when the foliage is three-fourths expanded.

Preparation of Spray

One of the following insecticides in 100 gallons of water may be applied in a conventional hydraulic sprayer:

1½ pints of 57-percent emulsifiable Malathion
1 quart of 25-percent emulsifiable DDT
4 pounds of lead arsenate powder and 16 fluid ounces of fish oil or linseed oil

Precautions in Handling Insecticides

The best time to spray is soon after daybreak. The air is usually calm at that time, so there is less chance of drifting the spray to buildings. Care should be used in preventing the lead arsenate spray from reaching the surfaces of buildings, for it may cause staining. Spray mixtures containing oil can be readily washed off by drenching the building with water from the garden hose before and after the spraying.

Malathion, DDT, and lead arsenate are poisonous to humans, fish, birds, and wildlife and should be handled with extraordinary care. Do not let the spray get into birdbaths or fish pools. Do not let it form puddles beneath the trees or along street curbs where birds may come to drink.

Other Elm Beetles

Directions for the control of other beetles attacking elm trees are given in U.S. Department of Agriculture Leaflet No. 185, Elm Bark Beetles.

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